



## Housekeeping management, supply chain, engineering and logistics operations establish a good technical maintenance in hospitality industry - A case study on Sheraton Gateway Hotel in Toronto Pearson International Airport, Toronto, Canada

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### General Note

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### ABSTRACT

Housekeeping is the major practice for the *hospitality industry* which is mainly a service *industry*. Hospitality industry includes an imaging services to restaurants, *lodging*, event planning, theme parks, transportation, cruise line, tourism *industry* etc. Now days,

housekeeping is a dynamic and vibrant industry. It has different facility maintenances and direct operations with technology, engineering, housekeeping, kitchen workers, marketing, human resources, bartenders and supply chain logistic management.

**Key words:** Housekeeping, Engineering, Technology, Inventory, Operation.

## 1. INTRODUCTION

Sheraton was established in 1937 by Ernest Henderson and Robert Moore at Springfield, Massachusetts, USA. It is the one brand out of the thirty of Marriot + Starwood hotels and resorts from September, 2016. It was the largest brand of Star Wood Hotels and Resorts. Right now, Sheraton has 435 hotels, 86 resorts in 70 countries. In Canada, Sheraton is operating 18 among the 84 Star Wood Hotels [Wikipedia, 2016].

### 1.1 Company Profile

The important business component for Sheraton Gateway, Toronto is hospitality by hotels and resorts. Sheraton Hotels and Resorts is a chain of luxury hotels owned by Marriott International. Sheraton has been welcoming guests through its doors since 1937 and it has grown to become one of the most popular, recognized and relied upon hotel brands in the world. It has more than 400 hotels and resorts located in some 70 countries around the globe. Sheraton Gateway is one of the most vibrant property which is linked to Toronto's Pearson International Airport by a walk way, this modern hotel is 6.3 km from Centennial Park and 7.3 km from Woodbine Racetrack. It has relaxed rooms have WiFi (free), flat-screen TVs and desks, as well as mini-fridges and coffeemakers. Club rooms provide access to a lounge with complimentary continental breakfast, all-day snacks and afternoon appetizers, plus free WiFi. Its Amenities include an international grill, a bar and a lobby lounge, as well as a 24/7 fitness centre, a spa and an indoor pool. There are also 25 meeting rooms and a business center.

### 1.2 Services

General: Room Service, Restaurant, Pet Friendly, Air Conditioned, Mini Bar, Refrigerator, Cable / Satellite TV, Bath, Coffee / Tea Maker, Hair Dryer, TV, Shower, En suite, Private Bathroom, Spa Bath

Activities: Fitness Room/Gym, Swimming pool, Massage / Beauty Centre, Sauna, Salon, Massage, Spa & Wellness Centre, Body Treatments, Pool Indoor, Business Center, Concierge, Elevator / Lift, 24-Hour Reception, Conference Room(s), Currency Exchange, Multilingual Staff, Porters, Wake-up Service, Meeting Rooms, Laundry service, Photocopier, Luggage Storage, Express Check-In/Check-Out

Parking: There is an airport shuttle that runs from the hotel. Check-in: From 3:00 PM & Check-out: Prior to 12:00 PM

At majority of Sheraton brand hotels, guests can earn a \$5 credit at any of the hotel's restaurants, or 500 Star points, for every night they opt out of housekeeping—for up to three consecutive nights (WSJ, 2010).

### 1.3. Objectives of the Study

- A.
  - a) To be studied Sheraton Gateway websites, links and online documents
  - b) To be observed organizational chart and responsibilities of divisions and positions
  
- B.
  - a) To be performed a complete research and drawn an operational system which is coordinated by Director Operations at Sheraton Gateway
  - b) To be evaluated efficiency by analyzing the data and numerical calculations
  - c) To be gathered, analyzed, reported and summarized GEI (Guest Experience Index) scores to the Director of Operation
  
- C.
  - a) To be implemented a supply chain, engineering reliability and logistics study with limitations and opportunities on operation and maintenance divisions
  - b) To be proposed a new operation strategy to obtain a balanced and sustainable economic system
  - c) To be assisted other departments for example engineering inspections, housekeeping with room inspections and tracking/ maintaining inventories for lost and found, human resources with posters and many other various department specific duties

d) To be organized and maintained files, analyzed reports and surveyed with various trend analysis, and other duties as assigned

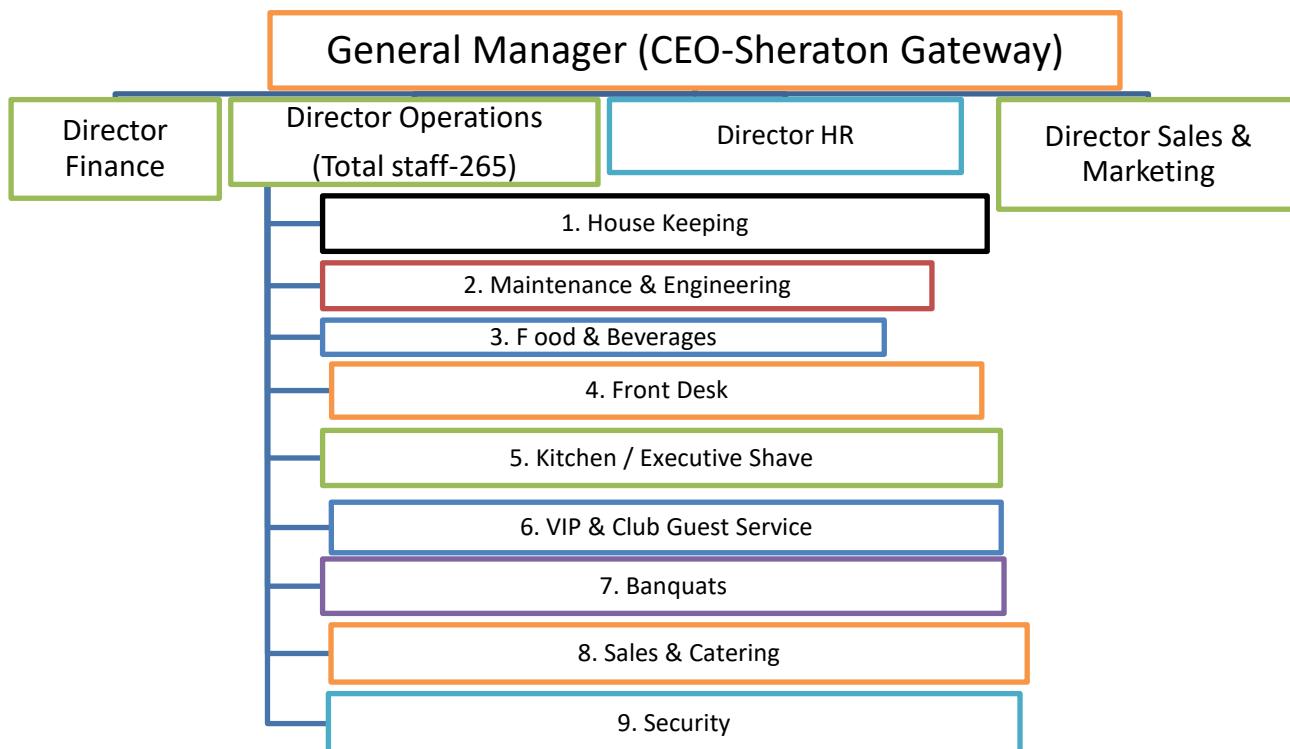
D. a) To be measured cost of logistics, SPG, Economic inventory model and connectivity of operation divisions  
 b) To be calculated costs for various departments and quantifying where investments need to be made and if they can be made within the hotel  
 c) To be obtained a win-win participated management for purchasing with resource allocation

E. a) To be discussed ins and outs of operation systems with quality and risk analysis  
 b) To be recommended an updated operation strategy.

## 2. COMFORTABLE PUBLIC ACCESS AND WIN-WIN BUSINESS

Sheraton Gateway provides direct access to Pearson Airport and features an indoor pool. Those staying at the property have access to a hair salon, a sauna and a beauty Centre. It has a fitness Centre with a swimming pool. Beauty treatments and massage are available at the hotel's day spa. Rooms at Sheraton Gateway Hotel Toronto Airport come with mini bars, spa baths and refrigerators. Each has tea and coffee making facilities, a flat-screen TV and a private bathroom with a shower. It has relaxed bar offers an extensive drinks menu, while the in-house restaurant serves international cuisine. Breakfast is available each morning and can be served in the comfort of the rooms. It is within walking distance of Cara Operations. The hotel's multilingual staffs are available to make sure that every traveler has a comfortable stay. Sheraton hotels formed the core of what came to be the ITT (International Telephone & Telegraph) Sheraton Luxury group, later Starwood's Luxury Collection (Zagorin, 1993).

### 2.1. Organizational Chart: Sheraton Gateway, Pearson International Airport, Toronto, Canada



**Figure 1** Name of Operation Divisions

### 2.2 Every day Operations: a) Technology

It contains wireless internet access, minimum bandwidth of 33 Mbps per 150 rooms (233 kbps per room) available for a guest internet use. Property web site might not conduct ecommerce transactions, games of chance or other regulated promotion activities

b) Reservations: 7/24 hours for Gold, Platinum and SPG members; SPG check in station should be staffed first, c) Common Areas, d) Recreation, e) Guest Room, f) Food and Beverage, g) Meetings, h) Procurement, i) Welfare and Security, j) Engineering, k) Housekeeping, l) Banquet and Catering, m) Front Desk, o) Executive offices: Conference rooms, Meeting Arrangements.

Details operations:

- a) Food Services: Catering, Banquet & Events, Restaurant bars
- b) Hotels: Revenue Management, Front Office, Rooms Division, Food & Beverages
- c) Events: Meeting & Conferences, Entertainment, Leisure, Sport Events
- d) Travel & Tourism: Cruiseships, Agencies & Tour Operations, Airlines
- e) Luxury Services: Sales and Marketing, Customer Services, Luxury Brand Management
- f) Miscellaneous: Media, Finance and Real Estate, Education, Human Resources
- g) Technical Maintenance: Technology, Logistics, Engineering equipment and housekeeping, Supply Chain and consulting.

**Table 1** Routine operation criteria

No	4-Level Hotel Operation Services	No	4-Level Hotel Operation Services
1.	Technology	8.	Procurement
2.	Reservations	9.	Welfare and Security
3.	Common areas	10.	Engineering
4.	Recreation	11.	Housekeeping
5.	Guest Room	12.	Banquet and Catering
6.	Food and Beverage	13.	Front Desk
7.	Meetings	14.	Executive Office

### 3. HOUSE KEEPING: ABC OF HOUSEKEEPING (VIDEO)

A: Away with the old: Dirty glasses and bed room clean tools and chemicals by Garbage Bag

B: Bed: Corner fixing, top finishing, Make or straighten the bed as per brand.

\* Bed-bugs training

C: Cleaning: Right chemicals at least 10 minutes to walk spray the bathroom clinic

D: Dusting: Cleaning chemicals and microfiber cloth.

E: Everything in the bathroom: Spray earlier; shining and polishing clearly

F: Finish the Bed Room

- ✓ Windows, doors and walls are cleaned
- ✓ Iron- no water
- ✓ Check the hangers
- ✓ Vacuum the whole room and all edges, corners should touch vacuum

Please remember that it's up to room attendant and supervisors to make the different. The shorter is the time of cleaning and tidying, the better is the efficiency, the hotel's operation cost will decrease, and the hotel's competitiveness will ascend (Chen, 2001).

#### 3.1. Inspections for Guest Room, Club Lounge etc (should be in excellent condition)

Bed And Bedding Headboard, Ceiling, Chair And Ottoman/ Sofa, Closet Area, Iron, Board, Safe, Luggage Rack, Coffee Brewer, Ice Bucket, Refreshment Center, Desk And Desk Chair, Entrance And Connecting, Drapes And Sheers, Dressers/ Armoire, Floor, HVAC/ Vents, Lamps/ Lighting, Mirrors/ Artwork, Nightstands And Tables, Activity And Dining Tables, Coffee And End Tables, Telephone/ Clock Radio/ Television (s) and Remote, Walls and windows, Wastecan/ Miscellaneous/ no offending door.

All equipment power and any related audio / video cables are neat and tidy and empty cable management techniques. In-Room Dining trolley and/or tray are clean on all surfaces and in all surfaces and all areas that are visible to the guest.

Guest Bathroom: Mirrors/ Wall Mounted/ Vanity and Shaving, Lighting/ Light Fixtures, Bathtub Fixtures, Vanity Sink/ counter cabinets, Toilet/ Bidet, Wastecan/ Miscellaneous/ no offending door, Vents/ Exhaust Fans, Amenity Tray/ Hair dryer, Bathtub/ Enclosures/ Shower Curtain/ Doors, Vanity Fixtures, Ceiling, Bath Linens/ Towel Shelf, Walls, Windows, Doors, Floor.

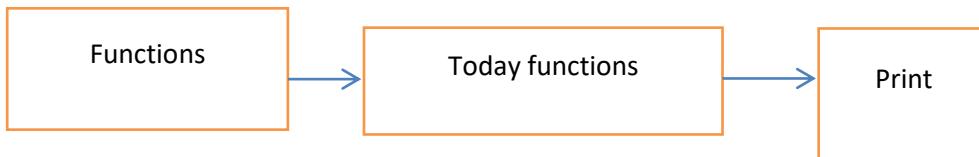
- No garbage in the room
- No hair in the bed
- No mold on the ties
- No hair in the bathroom
- Shuttle and other guest transport vehicles should be cleaned.

a)Inspection for Club Lounge, b) Inspection for Business center, c) Inspection for Lobby, d) Inspection for Corridors, Landing and Foyers, e) Inspection for Elevator, f) Inspection for Starwells, g) Inspection for Public restroom, h) Inspection for Fitness room, i) Inspection for Locker room/ Restroom, j) Inspection for Swimming Pool, h) Inspection for F & B Venue, i) Inspection for Ballroom, j) Inspection for Meeting Room, k) Inspection for Retail Shop, l) Inspection for Spa, m) Inspection for Outdoor common areas, n) Inspection for Pre-Function Areas, o) Inspection for all (office) heart of house areas, p) Inspection for all associate Lounges (heart of house areas), q) Inspection for all kitchen (heart of house areas), r) Inspection for all laundry (heart of house areas), s) Inspection for all loading dock (heart of house areas), t) Inspection for all locker (heart of house areas), u) Inspection for all rest rooms (heart of house areas), v) Inspection for all store and plant rooms (heart of house areas), x) Inspection for all entrances (heart of house areas).

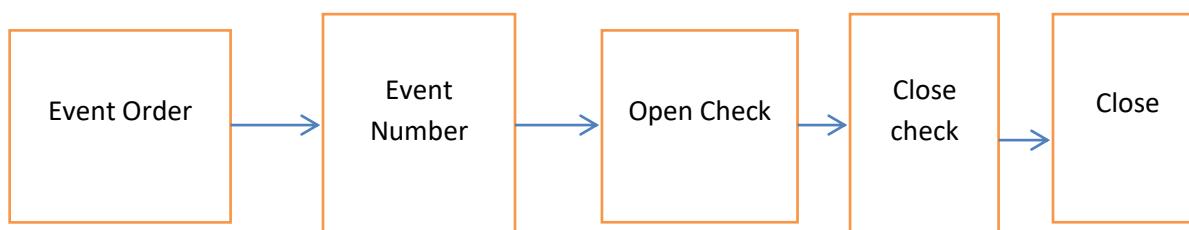
Questions: 1) How much temperature on thermostat? 2) Where should be keys? 3) What do you mean by loyalty in GEI? 4) What do you mean by tripling hazard? 5) What do you mean by ironing boards? 6) How can an employee get slip-resistant work shoes? 7) What do you mean by multi-surface disinfected cleaner? 8) What is the purpose of cart care?

#### 4. BILLING SYSTEMS

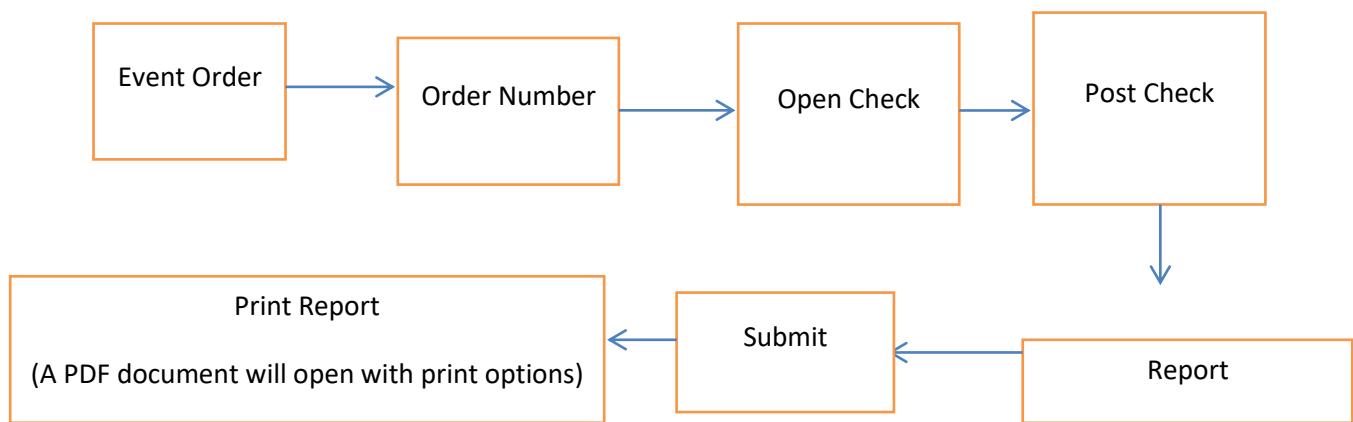
(i) Flow diagram 1: Print function daily report



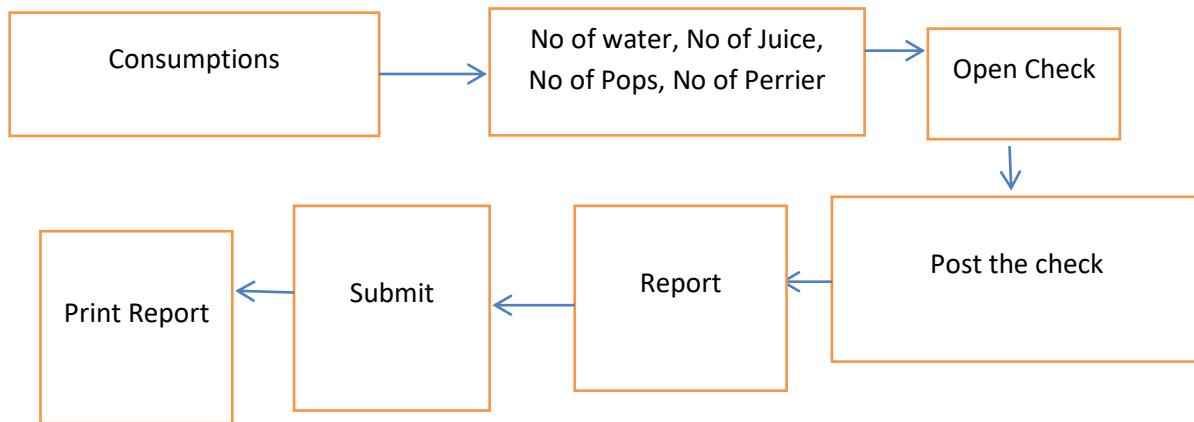
(ii) Flow diagram 2: If payment is zero:



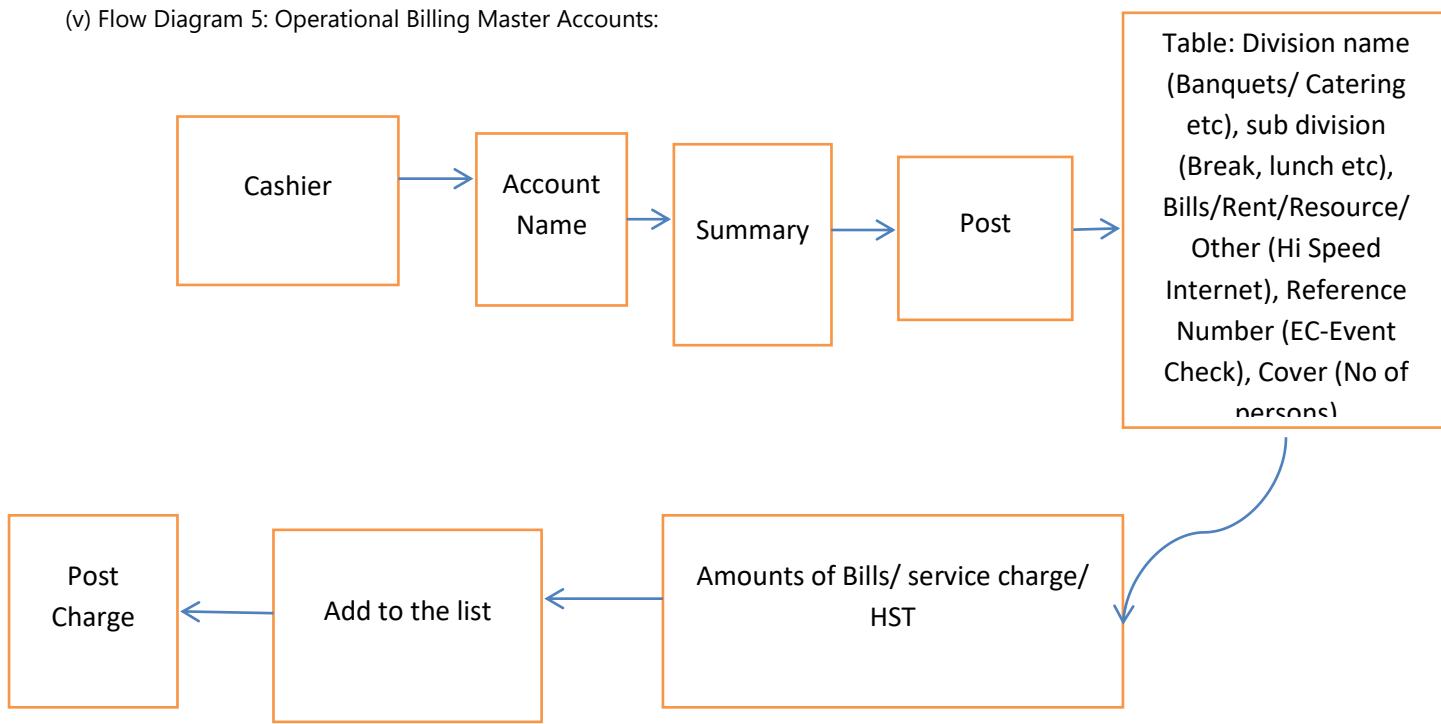
(iii) Flow diagram 3: Payment is not zero (\$54900)



(iv) Flow diagram 4: Accounts for Consumption



(v) Flow Diagram 5: Operational Billing Master Accounts:



## 5. ENGINEERING MAINTENANCE & LOGISTICS

Housekeeping department takes the first steps in maintenance functions for which the maintenance is ultimately responsible. Manpower in Engineering Division: Manager (1)-Assistant Manager (1)-Coordinator (1)-Staff/Mechanics (12) -9fulltime (6 mechanics+3painters), 2 part-time mechanics, 1 HVAC technician

### 5.1. Inspecting of Synergy Voice

CMMS (Computer Maintenance and Management System)

- It is the Centre of Controlling System

How identify the complaints: A) Housekeeping Request, B) Maintenance Defects, C) Manager IT, D) Front Desk, E) Manager on Duty (MOD) or Guest Service Manager (GSM)

Complaints can be identified by:

- i) Synergy(Employee ID) by Housekeeping and through the guest phone
- ii) StarGuest (Switchboard) by Switch board agent/ Manager

### 5.2. Engineering Equipment

i) Two cooling Tower (Each capacity 4000 Gallons)- Operated by Ontario Cooling Tower Services (OCTS) only for Summer ii) Glycol Plants (2plants-gettingcoolby Glycol chemical)-3pumps,4heating boilers,2couplingsystemsand1loopfor whole building, ii) Mixing Chamber for tempered water (144 degree F), Capacity 50 Gallon Per Minute (GPM), iii) A Pumping system for guest rooms, meeting rooms and Banquet Halls, iv) WaterTreatmentPlants-3Plants, ALGACIDE-Cooling Tower Treatment (Liquid Microbicide) (2plants) and ECOPERSE (Cooling Tower Biological film cleaner)(1 plant) 2 boilers-approximately 75% heating capacity (Expansion Tanks)

- 1 boiler-magnetized-95% capacity(Heat Exchanger)
- Pre-seasons servicing(twice per year)

iv) Generator: Capacity (625 KVA/ 500KW), Power Factor-0.8, Volts-600/347, Phase-3, Hz-50,

Duty-Standby, Test Run Quarterly (3 months), Manufactured- July, 1990,

➤ Servicing by Toromont, Manufactured by: Cummins Ontario Inc,

6 transformers (Switch gears Unit of Hotel): Capacity-27000 KVA/ 600KVA, Bus Amp- 600Amps, Cycles- 60 C, Poles-3, Probability- it was made at beginning of the hotel

### 5.3. Selected Projects

i) Sheraton Gateway Hotel, 8<sup>th</sup> floor club level lounge, Plan: Electrical

Terminal3 Projects: Office Elevator Sections

Project Terminal 3: Parking Garage Foundation Plan

Project Terminal 3: Food Service Equipment Plan and Schedule.

Mechanical Plan- 8<sup>th</sup> floor club lounge, Sheraton Gateway Hotel-MOI

Mechanical Devices: Supply Air Diffuser, Return Air Diffuser, Exhaust air diffuser, Linear S/R Diffuser, Light Troffer, Linear Bar Grille, Take off connection, Spin-on Connection, Externally included ductwork, Internally lined ductwork, Existing ductwork, Flexible ductwork, Thermostat, Damper, Manual damper, Splitter damper, Damper motor, Access panel, wall flush valve, Floor flush valve, Pendent Sprinkler, Recessed Sprinkler, Upright Sprinkler, Sidewall Sprinkler, Concealed Sprinkler, Dry Pendent Sprinkler.

- i) Part plans Mechanical pent house level: Observed correlation with structure, mechanical and electrical drawings,
- ii) Electrical legend and single line diagram- Sheraton T3 Gateway Hotel and Fitness centre
- iii) Sky lobby level electrical lighting & P.A. Speaker layout
- iv) Sky lobby level electrical fire alarm layout,
- v) Hotel Fire Protection System- Terminal 3 Project
- vi) Fire Alarm System Retrofit 2008- Sheraton Gateway Hotel

## 6. EYE VIEWER PROJECT

**Scope:** i) Unobstructed door viewer on guestroom door (no scratches), ii) Unobstructed door viewer on guestroom door- must have a minimum of 160° (Unobstructed Angle- UA).

**Table 2** Performance of Eye Viewers

Room Number	Unit Status	Functionality	Phases
324	New	Clear, UA≥160°	OK
330	New	Clear, UA≥160°	OK
334	Old	Cloudy and Scratch, UA ≤90°	Phase-1
360	Old	Cloudy and Scratch, UA≤150°	Phase-2
478	Old	Cloudy and Scratch, UA≤100°	Phase-1
523	Old	Cloudy and Scratch, UA≤125°	Phase-2
507 (Accessible)	Old+ New	New is clear UA≥160° and old is Cloudy and Scratch UA≤100°	New is OK and Phase-2 for old

WBS of Project: Total Room=474; 230 rooms newly installed and others will be replaced by phase-1 and phase-2.

Length of Project: Phase-1- Immediate and Phase-2- after finishing phase-1.

Sponsor/ Funding Organization: Marriot + Starwood Hotels and Resorts.

### 6.1. Data Analysis and Decision Making

Housekeeping Productivity,  $G = (B-C-D-E-F)/A = \text{Total useful working time} / \text{Time to clean for one guest room}$ .

**Table 3** Calculations for Housekeeping Productivity

A	B	C	D	E	F	G

20	480	20	30	20	20	19.5
21	480	15	20	15	15	19.7619
25	480	18	22	18	16	16.24
22	480	15	15	15	15	19.09091
24	480	20	20	20	20	16.66667
						<b>18.3</b>

A=Time to clean for one guest room (min)

B= Total Shift time (min)

C= Beginning of shift duties (min)

D= Morning Break (min)

G= Productivity Standard (Guest Room) in each shift

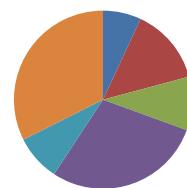
E= Afternoon Break (min)

F= End of shift duties (min)

**Table 4** Performance Evaluation Criteria

GEI (Guest Experience Index)				Evaluation Index	
Factors	Month to date	Year to Date	YTD Last Year	Occupancy	67%
Cleanliness	97.5%	97.0%	88%	Checkouts	76%
Loyalty	93%	92%	91%	Stayovers	58%
Housekeeping Productivity (Rooms per shift)			18.3	Number of magic rooms	45

**Complaints (272): Housekeeping\*(Bathroom, Bedroom, Garbage and Smell) & Engineering\*\* (Noise and Maintenance)**



■ Bathroom* (6.94%)	■ Bed room* (13.89%)	■ Garbage* (9.72%)
■ Smell* (28.8%)	■ Noise** (8.33%)	■ Maintenance** (32.41%)

**Figure 2** Relationships between Housekeeping and Engineering Complaints

## 6.2. Project Review

Lobby Entrance: Title: HVAC and Sprinkler layout specifications- Mechanical Installed: 2000/02/24, Reviewed: 2016/10/06

Descriptions: i) Reviewed fabrication of all ductwork and hangers to ASHRAE & SMANCA recommendations, ii) Ran all ductwork and piping as high as possible, iii) Located thermostat where shown on plan, iv) Insulated all concealed Supply Air ductwork with 1 inch

Fibre glass insulation complete with foil faced vapour barrier, v) Reviewed and supply and install all necessary balancing and volume dampers. Balanced all air systems to air volume noted on the drawings.

**Table 5** Calculations of cooling load and heating load:

a) Cooling Load Calculations

Components	Weightage	Total (Btuh)
South Glass	240x165x0.53x0.8x0.5	8,395
East Glass	280x214x0.29x0.8x0.5	6,951
WestGlass	280x214x00.4x0.8.0.5	9,587
Glass	800x0.62x17	8,432
Wall	350x0.1x17	595
Lights	1.00wx3413	3,413
Peoples	7x250	1,750
Peoples	7x250	1,750
Total		40,873 Btuh

Air Temperature=  $40,873 / (1.08 \times 2000 \text{ cft}) = 18.9^\circ\text{F}$

b) Heating Load Calculations

Components	Weightage	Total
Glass	800x0.62x70	34,720
Walls	350x0.1x70	2,450
Floor	500x0.5x70	17,500
Infiltration	40x15cfmx1.08x70	45,360
Total		100,030 Btuh

Heating (Furnace) Operation Temperature=  $100,030 / (1.08 \times 2000 \text{ cft}) = 46.3^\circ\text{F}$

### 6.3. Sheraton Hotel Emergency Supplies Inventory

**Table 6** List of Emergency Supplies Inventory at Sheraton Gateway, Pearson Airport, Toronto, Canada

Sl. No.	Name of the Item	Number of Items	Specification of Items	Remarks
1.	Bolt Cutter	04		
2.	Duracell Alkaline Batteries-D	64		
3.	Dehumidifier Console	01		
4.	Preventive Maintenance – Elevator	02	Thysseukrupp Elevator	
5.	Canners and Handlers	01 packet	Product of Thailand	
6.	Flash Lights (Maglite)	19		
7.	N95 Particulate Respirator (Mask)	4 Cartons	N95	
8.	Ice Cleaner (plough)	02	Garant	
9.	RIDGID (dual flek locking hose)/ Performance Filter	03 Cartons		
10.	Protective Footwear	06 Pairs		
11.	Cables (Yellow)	02 coils		
12.	Cables (Red)	06 coils		

13.	Cables (Green)	0.5 coil		
14.	Scotchilite-FRR 1500 LIME-L (Affron Dress)	04 Pcs		
15.	Venues Emergency Supplies	09 Bags	Each bag: Small flash lights 10nos, Large flash light 01 no, Blood Borne clean up 01no, Portable radio 01 no, Safety vest 01, Rubber Gloves 01 no, Masks 10 no, Goggles 01 no, Whistle 01 no, First and Kit 01 no, Ice Pack 01 no.	
16.	Rechargeable clock/ radio/light	03 Cartons		
17.	Flash light stickers (6 inches)	25 Packets		
18.	Ice remover (sable)/ Garant	04		
19.	Filter (Sucking / Exhaust)	02		
20.	Temporary stand for posters, notices, flyers	02		
21.	Decoration materials ( with electrification)	04 bags		

**Table 7** List of Sheraton Brand Standard Emergency Supplies

Sl. No	Item	Quantity
1.	Batteries-9 volt	4
2.	Batteries-AAA	12
3.	Batteries-AA	12
4.	Batteries-C	10
5.	Batteries-D	10
6.	Batteries-rechargeable for 2 way radios	1 extra per radio
7.	Blankets/ pillows/ cots	
8.	Bolt Cutter	1
9.	Built-horn	1
10.	Duct and masking tape	2 rolls each
11.	Emergency vests	5
12.	Fire extinguishers-extras	3
13.	First and Kit	2
14.	Flashlights	2
15.	Fluorescent tape or rope	1 roll tape/ 40' rope
16.	Foul weather Gear	2 sets
17.	Light sticks	2 dozen
18.	Master keys	1 extras
19.	Plastic bags, large	1 box
20.	Radio- AM/ FM radio- battery operated	1

## 7. CONCLUSIONS

This study is carried out to know hotel industries and its various departments, activities and their relationships with functioning of a good working system. Usually Sheraton annually implements a new practice to improve financial viability and guest and employee

satisfaction (Judy & Cathy, 1999). This field study has created to learn specific opportunities for my specialization of supply chain management, logistics and operations at Marriot + Starwood Hotel and resorts.

## 8. RECOMMENDATIONS

- i) Engineering maintenance and housekeeping inspections have common complain objects and performances, i.e; electrical, mechanical, plumbing, carpentry, civil and boiler works etc.
- ii) Long inspection form for room inspection has better application to identify minor error for improving housekeeping cleanliness ratio as well as GEI etc
- iii) This resourceful study will be an asset to obtain a job description of management trainee position at Marriot + Starwood Hotel and Resorts as well as ins and outs understanding of hospitality industry.

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## Appendix

### Standardized Organizations

- ✓ ASTM- American Society for Testing Materials
- ✓ ASA-American Standard Association
- ✓ AKI- Architectural Wood work Institute
- ✓ CEMA-Canadian Electrical Manufactures Association
- ✓ CGSB-Canadian General Standards Board
- ✓ CSA- Canadian Standards Association
- ✓ NBC- National Building Code of Canada